Campbell (H. F.)

REGISTRATION AND SANITATION;

THEIR VALUE.

A PRELIMINARY REPORT READ BEFORE THE BOARD OF HEALTH OF THE STATE OF GEORGIA.

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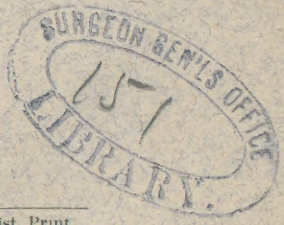
Chairman of the Committee on Endemic, Epidemic and Contagious Diseases, in the Georgia State Board of Health, and Vice-President of the American Public Health Association.

Re-published by the Board of Health for Instruction of the People.

[Reprint from the Annual Report.]



Chronicle & Constitutionalist, Print
Augusta, Ga.—1881.

Dr J. J. Turner
with Compliments of
Dr H. C.

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Public sanitation is the last, the grandest and the most benevolent gift an enlightened government can bestow upon its people. To extend aid in the midst of desolating epidemics, to answer with relief the plaint of woe as it ascends from the stricken homes of scourged communities, are but the humane and common acts of all well-ordered governments; but the parental forecast which anticipates an evil not yet apparent, and which seeks to avert a desolation unappreciated and unsuspected by its threatened victims, evinces a providential care and loving kindness which ever remind us that man truly was made in the image of his Creator.

Though not so proudly contemplated by the people of a State as would be the acquisition of a territory, nor so highly valued as the removal of an impost or the reduction of a tax; yet, in its efficient operation, preventive medicine enhances the population more than the one, and enriches the people's treasure abundantly more than the other.

Startling as two such propositions may at first appear, they are both susceptable of satisfactory demonstration. While prolonged discussion of any question in political economy is not consistent with the object of the present paper, it is not improper to examine briefly some of the questions unavoidably suggested by the consideration of that class of diseases which most largely affect the lives and happiness of individuals, and the general prevalence of which, in ancient as well as modern times, has been found more than any other single influence to deteriorate the wealth and to diminish the population of civilized communities.

Without entering into the irrelevant discussion of the vari-

ous sources of national wealth, we can here briefly glance at it only as conditioned by population, the element more directly concerned in the object of our report. There can be no question that, under ordinary circumstances, the principal source of population is from the births occurring among its inhabitants, while the adverse influence to its increase is the deaths; and a population is said to be stationary when the yearly number of its deaths exactly or nearly equals the yearly number of its births; "provided, there is no disturbing migration inward or outward." By the term *birth-rate* is commonly meant the proportion of births which takes place each year to the total population of a country, district or town. This may be expressed in two ways: as one to so many units of the population; or so many, say 25 or 30, more or less, to the 1,000 inhabitants of the region under registration. For example: "In the quarter ending July 4, 1874, the births in Dublin, Ireland, amounted to 2,365—being equal to an annual ratio of 1 in 23, or 30 in every 1,000 of the population." These results are thus obtained: The population of Dublin is 314,666; "if the births registered in one quarter are 2,365, of course those registered in a year, at the same rate, would be four times as many." On the other hand, the deaths are given as representing an annual death-rate of so many per 1,000 of the population. For example: in the week ending August 8, 1874, the deaths numbered 133—equal to an annual mortality of 22 in every 1,000 of the city's population, namely, 314,666."*

"It will be seen," writes one of the distinguished contributors to the "Manual of Health," just published, "that the height of the birth-rate is usually a valuable indication of the prosperity and physical welfare of a community. A high birth-rate in the presence of a low death-rate, implies that a population is living under the most favorable conditions as regards health, vigor and longevity; health, because a larger proportion of the population survives to a marriageable age; vigor, because more individuals are fitted to propagate their species; longevity, because the more numerous the births are to a marriage the greater the presumption that a long interval exists between the mean period of marriage and the mean period of death." He further remarks: "But, at the same time, unless the high birth-rate be coincident with a large area of habitable country and material prosperity to support the rapidly increasing population, the consequences to na-

*Manual of Health for Dublin, Ireland.

tional health will be serious in the end." Quoting from Dr. Acloud (National Health, p. 25), he continues: "The population must be kept healthy, and the commodities of life must be obtainable to a commensurate extent." Increased fecundity in the inhabitants always argues well for the good government and prosperity of a nation; "for when the means of supporting life are scanty, a high birth-rate is immediately followed by an increased death rate." Scanty food, it seems, will even lessen the liability to conception; for "M. Villerme has shown that, in almost all Catholic countries, the season of Lent dates but few impregnations."

It will be seen that we have elimininated from the above brief consideration of the increase of population, any direct reference to immigration and the acquisition of inhabited territory—factors over which sanitation could have but little or no influence, either direct or indirect. Though much interesting and very curious and instructive information might be gathered from the significant results of birth registrations, we forbear to pursue the examination further, and turn to that which has more direct and practical relations to our subject, namely, the influences which diminish and deteriorate the population of a country.

In the investigation of this question will be found more, very much more, than pertains to the subject confided to our care. Eliminating emigration and war, death by disease is, of course, the antagonist factor to births, serving to prevent the increase, and sometimes diminishing, the actual numerical status of the population of countries. Various attempts have been made to establish a "law of mortality," or some "mathematical relation between the numbers living at different ages." The first table of mortality, it is said, was constructed by the astronomer Halley, in 1693, based upon documents relating to the town of Breslau. Acccording to the theoretical law of mortality of Demoivre, out of eighty-six persons born, one dies every year until they are all extinct; with this beginning, various bases of calculation have been used, and in regular descent, we have life-tables, and various practical results, upon which are founded life insnrances, annuities, and many ventures of the like character, now considered by business men as among the most reliable of all investments.

In all countries in which there has been accurate registration on the subject, the number of births has been found to exceed that of the deaths, and it is now "laid down as a law"

that such is the case also in cities, with but few exceptions.

The registration of deaths, as well as of births, may be considered as a direct outgrowth of the laws of various countries authorizing the census, or counting of the people, and, indeed, all accuracy in regard to both the death-rate and birth-rate of any country is entirely dependent upon a correct enumeration of the population. "Any deficiency in either the registration or the census will lead to erroneous estimates of the birth and death rates. The first complete census was taken in Great Britain in 1801." Registration was legislated in England in 1836, and the system was set to working July 1, 1837. In a recent work we find the following: "Some idea may be gathered of the work done since then from the Registrar-General's Thirty-fourth Annual Report, page 20, in which this passage occurs: 'The records of the office for the period of thirty-four and one-half years, extending from the middle of 1837, comprehended, in respect of the relation to the three great events of life—birth, marriage and death—upwards of forty-seven million names, each name being inscribed in an alphabetical index, prepared quarter by quarter, promptly as the certified copies reach the office, and so arranged as to give the utmost facility for reference. All that is necessary on the part of an inquirer, to insure the immediate production of any entry of marriage, birth or death is, that he should give the year in which the event took place, and the correct name of the person to whom it relates."

In Scotland, the registration of births, marriages and deaths was introduced in 1854. In Ireland, a similar system was introduced in 1863, and carried out since January, 1864. In each of these countries, ample and definite legislation has been enacted, and at the present time, the minutest details of everything relating to the vast and complicated scheme of State care of the public health has been systematized and rendered practical, by acts of Parliament and by special regulations, down to the very last particular. The remotest rural district experiences and enjoys the benefits of the same watchful care, both as to its sanitatary condition and vital statistics, as Edinburgh, or Dublin, or London itself. Here let us ask the question: Do wise and economical governments—like that of Great Britain, in the full tide of its enlightenment as well as prosperity—take upon themselves such complicated trouble, and make such unlimited appropriations; would they make any one thing the object of such never-slumbering care and fostering attention, without considering well the cost; would

they continue all this over a third of a century unless experience had demonstrated, in the most unquestionable manner, its inestimable and priceless value to her people?

Much could be adduced in regard to the acts, provisions and regulations of Great Britain bearing upon public health, which would awaken the interest and excite wonder in some of the most enlightened and well-read citizens of our State. A mere list of their titles and the index to the provisions, bearing upon Ireland alone, cover over thirty closely printed pages of the excellent manual now before us. This is the result of years of patient and self-sacrificing labor on the part of her sanitary authorities, and of enlightened and experienced statesmanship on the part of her Houses of Parliament. For more specific reference to the sanitary acts and provisions of Great Britain, we refer to another portion of the present report.

While glancing at the history of public sanitation we cannot fail to note, with gratifying pride, the very early period, comparatively, in which our own country began to give the most earnest attention to the all-important subject. We have before us the thirty-second registration report (for 1873) of the Commonwealth of Massachusetts, by which we are informed that her registration law went into effect as early as 1841, making her, as is well known, the first State in this Union who entered upon the enlightened and humane legislation on vital statistics, so strongly tending to the advancement of the health and to the protection of the lives of her people. This was thirteen years before the introduction of such a law in Scotland, twenty-two years prior to that of Ireland, and only four years subsequent to that of England, which may be considered the earliest mover in this important measure of wise political economy.

This State has since passed an act establishing a State Board of Health, and since June 21, 1869,* the self-sacrificing and widely beneficial labors of that most able body have been made known to the civilized world as a model and an encouragement for the organization of similar tribunals under other States of this Union, and under foreign governments.

The exact date of the law of registration in the State of New York we cannot, at this moment, accurately define, though we are informed (see Transactions of American Medical Association, Vol., I., page 339), that it was "in full force"

*For the valuable reports and records relating to registration and sanitation in Massachusetts, the committee make acknowledgments here.

in 1848. Other States have since enacted laws establishing registration, and organizing, some of them, Boards of Health, but in regard to such legislation, no records are before us which would enable us to give any accurate report of them.

Intimately connected with their researches and pursuits, it was unavoidable that any other than the medical profession should be the conceivers and chief promoters of objects so profoundly conversant about the study of humanity as vital statistics, and so intimately connected with its physical welfare, as State health. Consequently, at its very first meeting, held in the City of Baltimore, May, 1848, we find the American Medical Association agitating these subjects with an energy, public spirit and benevolent intent greatly to be honored, and for which that learned body has ever been distinguished.

We find in this volume (Vol. I, 1848) two papers specially devoted—the one to registration and the other to sanitary objects. So important in the eyes of the profession, even at that early period, was registration, that at the convention, in 1847, to form an association, a standing committee on the "registration of births, marriages and deaths" was at once appointed, and an address sent to the government authorities of the several States urging registration. Their report was made the following year, at Baltimore, May, 1848. The reporter here states that, "although no definite action had followed the transmission of the address to the authorities on the part of the States, yet the agitation of the subject by the Association had undoubtedly been the means of awakening attention in many places to the value of a general registration, and that they had reason to believe the day not far distant when a majority of the States will perceive how great an interest attaches to it. They mention Massachusetts and New York as the only States having such an act in operation. "On the first introduction of the law," says this early report, "the friends of the measure in both these States felt much anxiety lest a too great stringency of obligation upon the officers appointed to execute it might jeopard its passage or precipitate its repeal"—how history repeats itself!—"but experience has demonstrated that the benefits of the measure are sufficiently understood and appreciated, and no difficulty has been found in so amending the law as to make the returns, to a greater or less extent, compulsory." They even then clearly recognize that "upon the medical profession of the United States must chiefly devolve the duty of arousing

the attention of the State governments to the value and to the necessity of a general adoption of the measure."

Twenty-seven years have passed since such language was used by the far-seeing and faithful Committee, at that early day appointed to initiate an interest in this most important measure for the good of humanity in each and all of the States. Would it be believed that even then, when the above report was made to this—what may be called "the Medical Congress of the United States"—Georgia, with only one other State—New Jersey—to rival her in her enlightened interest, was signalized and distinguished as "having taken steps to give effect to the recommendation of the association?" And yet, only last year did Georgia, so long ago so far in advance of so many others, pass her registration and sanitary act for the health and protection of her people. How the good impulse and interest, so long ago begun, relaxed into apathy, no one can tell. How valuable to the State government, and to the people themselves, would have been the mass of accurately-recorded events of life during twenty-seven years, we will not begin now to surmise or to ponder on with unavailing regrets; how much treasure we may have expended and lost by the destruction of trade, or by fleeing from or suffering under preventable epidemics, we must not now tantalize our minds with the complicated sum; and, more deplorable than all, how many valuable lives have been, perhaps, unnecessarily destroyed in all that time, we must not now sadden our hearts by looking into their graves. The interest in Sanitation having been revived, the wise and benevolent law enacted, with us of the present day rests the responsibility of so carrying out its provisions that they may result, in the future, to the fullest benefit of the people. With our predecessors in the movement, it was perhaps mostly a prophetic surmise which led them to their efforts in behalf of public health. With us, there are the instructive statistics and the accumulated records of history to admonish and guide us to the benefits we may gain by organized Sanitation.

The other paper found in the Transactions relates entirely to the public health. It is a communication from the medical department of the National Institute, by a committee which had been appointed as early as May, 1848. The distinct object of the appointment was the canvassing of the profession on the subject of public hygiene, and through them to diffuse a knowledge of the evil influences everywhere destroy-

ing the health of communities, and to awaken among the people an interest in the inestimable benefits of sanitary measures. At that time this committee had to deplore that "there existed two prominent causes which retarded the progress of their labors—first the general apathy existing, even in the minds of medical men, on the subject of hygiene; and second, the favorable opinion entertained by almost every one addressed, of the healthfulness of his own particular locality. The first of these causes, however, rapidly gave way, and was soon succeeded by a most ready and anxious zeal, on the part of the profession, to discuss and develop the question of public health." The association, as we have seen, here appointed "the Standing Committee" on sanitary improvement, whose duties were defined in the following paragraph:

"The Committee on Sanitary Improvement shall present an annual report on the sanitary condition of the country, compared with that of other localities, embracing, as far as practicable, the existing condition of the prisons, hospitals, educational institutions, manufacturing establishments, etc., etc., in their relations to the laws of health and life. They shall also point out, with discretionary minuteness, the more obvious infringements of nature's code of health generally permitted by the authorities of cities and of densely populated districts, and their influence on human viability, including any other information tending to the increased valuation of human life."

This certainly, though compendious and brief, must be recognized as a most comprehensive statement of the *essentials* of all that could be embodied in the most modern of our sanitary acts.

Simultaneous with this most powerful and determined effort on the part of the medical profession of the United States, in behalf of public health, as we have seen, a similar one in England was being made, which, as we know, has been attended with the most extraordinary and beneficial developments.

Such, as briefly as could be clearly presented, has been the earlier history in this country and Great Britain, of a question which has been esteemed, by all who comprehend it best, as being "second in importance to none that can occupy the deliberations and engross the attention of any government having the welfare of its people at heart." The progress of sanitation since that period, and the immense benefits growing out of it, are too well known, by the full and instructive

annual reports of the several Boards in the States which have established them, to require here a further pursuing of its history. That our own State has entered upon the first step of enlightened and humane legislation necessary to the perfecting of a thorough system of efficient and life-saving sanitation, will be more and more the cause of satisfaction and thankfulness among the people, as its crying necessity on the one hand, and its immense benefits on the other, become, year by year, better and more generally understood. Our State Government, we believe, will continue to extend and particularize this legislation into all the minutiæ that may be found necessary to render their Sanitary Commission effective. For the present, with its imperfect organization in the districts, and without specific acts under the law of its organization, the Central Board can not do more than "hold up the hands of those who wish to do good to the people." Just now, this can only be done by earnestly and widely instructing those who are to be benefitted—first, in regard to the dangers that surround, and the evils that beset them; and, secondly, as to the most enlightened and effective means of evading the one and of eradicating the other.

Organization and Laws.

The Boards of England, and of Ireland, and of Scotland, are perfect and thoroughly systematized organizations, with authority graded, and resources and appliances so distributed that promptness and effectiveness pervade its dominions to the remotest and most obscure corner of the British realm. From the humblest Scavenger, or Inspector of Nuisances, up to the highest sanitary authority, the Registrar-General, all are acting under the authority of specific and most binding law. Every one is instructed by the clearest definition of his particular duty, and each one is irrevocably bound by a personal responsibility that no art can escape from, nor any sophistry evade. An *imperium in imperio*—most truly is sanitation in the midst of the British nation—with the health of the people, the exacting monarch swaying the sceptre. This wonderfully advanced and enlightened government of Great Britain, ever so notoriously jealous of the individual rights of its citizens, yet delegates an amount of authority to its health officers—and, sometimes, too, of not the highest grade—which, it seems to us, would cause dissatisfaction and meet with resistance, were any such privileges granted to any other class of its officials. For instance: we find the following statement

premising the presentation of what is known as "The Public Health Act, (for Ireland) 1874," portions of which we will hereafter copy from the List of Provisions:

"The Public Health (Ireland) Act, 1874, has largely increased the powers of the Board, as a controlling sanitary authority, and has effected several important changes in the constitution and powers of the local authorities."

"In a circular recently issued by the Local Government Board, the following are stated to be the principal changes introduced by the act:

"1. A better arrangement of the sanitary districts and sanitary authorities by the Act itself.

"2. A power given to the Local Government Board to organize the machinery for the administration of the sanitary law within each sanitary district, and to exercise a control over its management, which previously it could not exercise even in relation to the Boards of Guardians, far less in relation to the various municipalities.

"3. A power given to the Sanitary Board, subject to the consent of the Local Government Board, to remunerate local officers for additional obligations cast upon them under the sanitary law,* and to determine the emoluments of new officers, whom it may be found necessary to append additional expenses so incurred, to be borne (probably to the extent of one-half, as in England) by the Imperial Exchequer."

Then follows a list of provisions, the mere titles of which—we have not room for the text—are most instructive and serve to give us an insight into the extensive powers invested in, and also the binding restraints imposed upon, the health officers under such provisions—all evincing an amonnt of careful deliberation and patient thoughtfulness, on the part of the Government, to secure perfection in the effective working of a law that has evidently been regarded by their statesmanly Parliament as of paramount importance to the welfare of the people. Among these provisions are the following, with some of the subjects specified:

Provisions Relating to Urban and Rural Sanitary Districts and Authorities.—Under these, the districts are bounded, the officers appointed, or sanitary duties assigned to police or county

*These officers are municipal police of various orders, upon whom the Board, as health officers, are empowered to impose additional duties and responsibilities. As under the Act of the Legislature of Georgia, there have been imposed—not by the Board, but by the Act itself—"additional duties upon our local officers—the Coroner, the County Ordinaries and the Clerk," etc.

taching to these officers, were transferred to *strictly sanitary* officers, whether in town or county districts. Local government boards can, under certain circumstances, "by provisional order, either wholly or partially alter local acts relating to officers already in office, as the corporation or the commissioners for the Cities, the poorhouse guardians for the country, etc. In certain cases, powers and duties, formerly at- sanitary measures, and may increase or diminish the area to which such acts shall apply." In what other object in the wide world would England ever dream, for a moment, of constructing a law so flexible? And yet here, her wisdom, her statesmanship and her ingenuity were all apparently brought into requisition, by her interest in her people, to render the law *purposely flexible* and *handy*, solely for their good. We almost doubt our accurate understanding of the full intent, plan and apparently unmistakable as is the language.

Then comes a series of provisions relating to powers conveyed to sanitary authorities: "Dealings with lands," etc.; "taking lands under sanitary acts;" "leasing lands;" "powers to purchase water-mills, etc., "and authority to buy any water-mill, dam or wier, which interferes with either the drainage or water supply of any district, and any sanitary authority may purchase, either within or without its own district, any water or right to take water, without interfering with navigation of rivers and canals; the supply of any water-works or the rights of individuals." (Sections 28, 29.)

Borrowing Powers.

"Any sanitary authority may borrow money necessary to defray the expenses incurred by it under any of the sanitary acts, subject to the regulations of those acts." There are many circumstances mentioned under this head. The commissioner of public works in Ireland in authorized to make the loan, "such loan to be repaid within thirty or fifty years, and to bear interest at £3 10s. per annum, or such other rate as the treasury may consider necessary to enable the loan to be made without loss to the exchequer." (Section 40.)

"Rating" (Assessing or Levying.)

"Any limit imposed on any rate by a local act is not to apply to any rate to be levied to defray expenses incurred by a sanitary authority for sanitary purposes." (Section 42.)

This last delegation of power to tax is thus explained: "The result of this provision is to give to sanitary authorities

an unlimited power of rating." (See also sanitary act of 1866—sections 58, 59.)

STAMP DUTY.

Appointments made under the Local Government Board (Ireland) Act, 1872, are exempted from stamp duty." (Section 65.)

Such are some few of the powers conferred by the sanitary laws of Great Britain upon those charged with the high duty and responsibility of caring for the PUBLIC HEALTH. Our references are to the Act and its provisions, as intended for Ireland, merely because easy access for us was given to this particular case, as found in the only work within our reach which contained the most recent (1875) provisions of British legislation on the subject of public health.

SANITARY AUTHORITIES—SANITARY OFFICERS—DUTIES.

Having presented above a few examples which exhibit the extent of authority delegated to the health officers, and also the definiteness and the stringency of the provisions by which they are controlled, we would be glad to give some idea of the official machinery, so to speak, by which such well considered legislation is made to operate for the public weal. This process, though most difficult of description, we will yet briefly, even though imperfectly, attempt to present.

The acts under which sanitary measures were put in force in Ireland, prior to 1866, were four in number:

1. "The Local Board of Health Act."

2. "The Officers of Health Act"—both under George III. Under these two enactments one set of sanitary authorities were empowered, while later (1848-49) in the present reign, two other acts gave power to a second set of authorities. These two are what are known as "The Nuisance Removal Act" and "The Disease Prevention Act." These two sets of health officers were distinct and separate, and, consequently, inefficient. "The Vice President of the Local Government Board, in his evidence before the sanitary commission (1869), observes that 'these acts were almost inoperative for want of clearness." They were repealed by the sanitary act of 1866, which inaugurated "a new state of things," and which "extended to Ireland the latest improved legislation for the prevention of disease and the removal of nuisances."

Under this Act, 1866, the corporations and the various municipal commissioners of towns and cities became their "sanitary authorities," while, as has been stated, the poor-law guar-

dians became the sanitary authorities for the country districts. "Thus, for ordinary purposes of sanitary administration, every part of Ireland was placed under some single and known jurisdiction." In 1872, powers of control over the action of the local bodies were transferred from the Lord-Lieutenant and Privy Council to the "Local Government Board for Irelane." These powers, as we have already quoted, were greatly increased, making "this Board the controlling sanitary authority."

As in the case of the local authorities, already existing incumbents of police offices and other appointments were made available to execute the provisions under the Sanitary Act of 1874, while special sanitary appointments were, as far as possible, avoided. By this means a complete and thoroughly constituted organization was quickly utilized to the purposes of sanitation, with comparatively little additional expense, by assigning sanitary duties and responsibilities to the various municipal officers and employees already on hand and on duty under the municipal authorities, all under the advice and control of the government board. Besides the police officers thus utilized, various other officials are made available as health officers, as municipal surveyors and engineers, and others holding city appointments; while everywhere, both in city and country, medical men, holding city or country offices, had sanitary functions additionally assigned them. "Every medical officer of a dispensary district shall be a sanitary officer for such district, or for such part thereof as he shall personally be in charge of, with such additional salary as the sanitary authority thereof may determine, with the approval of the local government board. And further: the medical officers of hospitals, poor houses and work houses become, by virtue of their offices, either consulting sanitary officers or sanitary medical advisers or instructors, while executive sanitary officers and sanitary sub-officers of various grades were secured in the persons of the clerks and other unprofessional officials connected with these institutions, everywhere conveniently located throughout the districts, for overlooking and securing the important operations and results contemplated by the act. And finally, in addition to them, "a Medical Superintendent Officer of Health" may be appointed as the Board shall direct.

The qualifications for office are determined by the Board, and they relate more particularly to the consulting sanitary

officers (that is, medical men). No special examinations, generally, are required, but the candidate must present his licenses or diplomas as evidence of his competency for the duties. The minimum age of such a medical officer is twenty-three years. (See General Order, November 29, 1869). No special qualifications are required in the case of the executive sanitary officers or sub-sanitary officers. Appointments, pay, and tenure of office, though managed by the sanitary authoritiet (city or country, as the case may be), are still under the control of, and subject to the approval of the Government Board." "The Board may remove any officer on sufficient grounds, and require the sanitary authority—being the city council or council commissioners—to appoint another person in his place. In case the sanitary authority fails to appoint a successor within one month, the appointment may be filled by the Board."

Duties.

These are most clearly defined in a series of directions, which comprehend every possible contingency in which any of the officers may be called to act. They are: first, inspectoral duties; second, executive duties; and third, those by the medical officers, which relate to the statistics of disease and vital records, and to the advisory, investigatory and supervisory services involved in the relations of consulting sanitary officer to the interests of his district, as well as to the local sanitary authority and the Government Board.

Thus have we, in compendious and restricted limits, endeavored to present some of the more prominent and essential features of the organization, duties and requirements instituted under the most recent Sanitary Act of Great Britain—perhaps the wisest, the most economical, and the most stable government in the world; and the one, above all, most experienced and advanced in the science and in the benefits of public sanitation. These extracts have been made with no destined view of offering a model for the guidance of our own State Government in their legislation in regard to the interests of public health in this Commonwealth. Whatever good purpose they may happen, in any degree, to subserve as suggestive of an outline in deliberations on these important subjects will, of itself, be highly gratifying to the committee and the board who assigned them the duty, and will more than repay them for any faithful effort in the collection and presentation of such records. Their object, however, had a less specific

and more general and, in their view, far more important bearing—nothing less than the collection and presentation of facts relating the general admission of the imperative necessity of sanitation, and the high importance invariably accorded to it by the people, as well as by the Government, in all those countries in which special attention has thereto been directed. These legal enactments, and this thorough system and efficient organization, are but parts of the history and present condition of a new science which in the humble opinion of this committee, is one but little known or attended to in our own State—and no more in many of the other States of this Union—and concerning which a general diffusion of information among the people is greatly needed. With some faithful diligence, and sometimes with no little difficulty, they have been able to secure recent works and current periodicals embodying modern sanitary science and practice, published only in foreign countries, in order that some of the more cardinal and well-established principals of public hygiene, as well as the tone of popular thought in regard to them, might be presented for the consideration of the intelligent and public-spirited citizens of our State. A department of political economy—so recently inaugurated that into its occult merits legislators themselves have, as yet, had scarcely time to examine, and a department of medical science so new, and also so indirectly conversant about their common studies, that medical men are but little, as yet, familiar with it—must necessarily, even in its commonest assemblage of facts, appear strange and perhaps questionable to common people when first they are called to consider its cultivation.

Notwithstanding the newness of the question in Georgia,* the Board has had good grounds for encouragement in their labors. Citizens generally have shown an intelligent appreciation of its importance far in advance of the vague information thus far promulgated; and the medical profession everywhere have signified a most worthy and ready acceptance of the duties assigned them under the provisions of the act. It affords this committee much pleasure to make special mention of "The South Georgia Medical Society," one of our most influential local bodies, which, through its President, Dr. T. S. Hopkins, of Americus, has distinctly announced itself as an active auxiliary to the Board of Health, and as

*The Act inaugurating the registration of vital statistics, and establishing a State Board of Health, was approved 25th February, 1875, less than one year ago.

earnestly devoted to the promotion of the sanitary interests of our State. This generous and benevolent action, we feel assured will soon be followed by all similar organizations throughout the State; for upon the superior knowledge in such matters, and enlightened humanity of medical men, must this great movement,- so indispensable to the welfare and progress of our communities for a long time, principally depend.

The above brief sketch of the "past and present" of sanitation might well close this strictly preliminary report. We have seen that in the several stages of advancing enlightment, modern civilization has been gradually approaching its present culmination. 1st, the census or careful counting of the people, made complete by Great Britain only since 1801. This gathered an accurate numerical record of the population, and made it possible to estimate the proportion of births or of deaths to the thousand inhabitants, either of the entire realm or of any given region. Then came the registration of vital statestics—births, marriages and deaths in the same country, in 1837—and soon after in our own country, beginning with Massachusetts, in 1841, and extending to other States. And finally, the establishment of Health Boards in England and America, and lastly in Scotland and Ireland—all with legislative acts—rapidly improving the system and organization towards its present state of almost perfect efficiency.

Zymotic Diseases.

"The sole object of sanitary legislation and organization is the preventation and control of disease." As the science of public health has become more advanced, each year has added to a number of diseases sought to be brought under its influence. Our power over some of them has long been acknowledged; for all contagious diseases, systematic isolation and disinfection, according to the strict rules of sanitation, will nearly always confine them to the district—to the very house—indeed, to the individual in whom the specific symptoms began io manifest themselves. Small-pox, it is known, can, by faithful and universal vaccination, be "stamped out." And even those dreadful contagions, of which the bare mention of their names ever thrills us with a tender horror—because against them we are helpless to protect the helpless—scarlatina and diphtheria—while the results of treatment are not encouraging—they are becoming far better understood in their origin, specific causes, and extension in communities,

and now we have strong and hope-inspiring assurances that even for these, control and prevention will ever attend upon intelligent and faithful sanitary effort in regard to them.

Somewhat regardless, perhaps, of anticipating some of the more advanced details confided to us, let us note now some of the devastations following in the wake of these two fearful contagions. In the passage we quote, it will be shown that scarlet fever alone averages about 18,000 lives per annum, and sometimes destroys 30,000 persons in a single year! and diphtheria, also, a very large number in England and Wales. "From a return moved for by Mr. W. H. Smith," says Dr. Beale, of London,* and printed by the House of Commons, we learn that the deaths from zymotic diseases, in England and Wales, amount to upward of 111,000 annually, out of a population of under 22,000,000, the total deaths from all causes being under 500,000. Continued fever destroys upward of 20,000 lives per annum; scarlet fever alone averages about 18,000 victims, and sometimes destroys 30,000 persons in a single year. The actual numbers are given in the accompanying table, which has been calculated from the Registrar General's return above referred to."

We quote here only that portion of this striking table which gives the yearly average deaths from zymotic diseases, during five years, from 1864 to 1868, inclusive.

Estimated average population for England and Wales from 1864 to 1868 (inclusive)	21,210,431
Average total of deaths annually	487,765
Diarrhœa and cholera	25,165
Fever annually	20,000
Scarlet fever, annually	18,659
Whooping cough, annually	10,815
Measels, annually	9,208
Small pox, annually	4,337
Diptheria, annually	3,644
Other diseases	19,425
Total zymomic diseases, annually	111,418

Being 22.84 per cent. of the total deaths.

With such a fearful exhibit of mortality, caused by diseases classed as "preventable," before us, we can well understand how registration, without which the fearful secret would not have been divulged, inspires and incites to sanitation, the only, but, at the same time, most efficient means of staying the destroyer. Well may England, in her ever humane and

*Disease-germs—their Nature and Origin—By Lionel S. Beale, M. D. and R. S., etc. London. 1872. p. 88.

parental vigilance over her people, exercise all her wisdom in legislation and strong hand of authority to carry it out, even were her efforts unappreciated and resisted by those she would humanely save. "Happy," possibly it may be said, "are those nations who do not exhibit such bills of fearful mortality." Such happiness, it may be answered, is but the bliss of ignorance, unless registration by law can prove that a better condition of public health, and a lower death rate, really do exist. No country or State can ever know how fearfully it transcends the normal standard of seventeen in a thousand without careful and accurate registration.*

"As an instance of the saving of life, which has bean caused by the progress of civilization and of hygiene, we may mention London,† the annual mortality of which two centuries ago, was fifty per thousand, its inhabitants living only twenty years on an average. The yearly death-rate was—1660 to 1679, 80.0; 1681 to 1690, 42.1; 1746 to 1755, 35.5; 1846 to 1855, 24.9; 1871, 22.6. The annual rate is now only 24 per thousand, and the mean duration of life, forty-two years. Even, within the past few years, a great decline has taken place in the death-rate of many places in England, which have had the benefit of sanitary improvements." If the words of M. Quetelet, as here quoted: "The development of science has tended to make isolated dwellings and enclosed towns salubrious, to effect the gradual disappearance of marshy localities, and of the so frequent causes of epidemics, which decimated our ancestors Medical skill and public hygiene have equally discovered valuable means of combatting mortality; and it might easily be shown how intimate are the relations between public health on the one hand, and density of population and wealth on the other." "In every district in which fever returns frequently," says Dr. Southwood Smith, in his examination before the committee of the House of Commons, "there is uniformly bad sewerage, a bad supply of water, a bad supply of scavengers, and a consequent accu-

* "Without affirming on physiological grounds," says the Registrar General of England, "that man was created to live a destined number of years, or to go through a series of changes, which are only completed in eighty, ninety or one hundred years, experience furnishes us with a standard which can only be said to be too high, seventeen in a thousand is supplied as a standard by experience. Any deaths in a people exceeding seventeen in a thousand annually are unnatural deaths. If the people were shot, drowned, burnt, poisened by strychnine, their death would not be more unnatural than the deaths wrought clandestinely by disease in excess of the quota of natural deaths, that is—in excess of seventeen deaths in one thousand living."—*Report for Quarter Ending December*, 1857.

mulation of filth; and I have been accustomed to express the fact in this way: if you trace down the fever districts on a map and then compare the map with the map of the commissioners of sewers, you will find that wherever the commissioners of sewers have not been, there fever is prevalent; and, on the contrary, wherever they have been, there fever is comparatively absent;" and adds that sanitary regulations would "lessen the mortality by one-third, and perhaps one-half.

Deficient ventilation, a scanty supply of water, and improper or deficient drainage, are, each one of them in itself, a powerful predisposing cause of disease, and, when combined, cannot fail to produce a high rate of mortality. Most of our large cities will, in time—those which do not already possess them—secure properly constructed works for the abundant supply of water to their citizens. Atlanta, Savannah and Augusta are each most abundantly supplied with pure drinking water, besides an almost unlimited quantity for the purposes of irrigation and of drainage. In modern times, a full and cheap supply of water to a city secures domestic arrangements of the dwellings which involve the free use of the water for bathing and purposes of house-drainage. These, in time, can only exist as permanent arrangements, in connection with a system of properly constructed and covered SEWERAGE. It is fearful to reflect what an evil our blessing may become by any inattention to the advanced and well-considered principles of sewerage which modern sanitary engineering has established. "The construction of conduits for sewage, or sewers, falls specially within the province of the engineer; but it is desirable that the sanitary officer should insist that ample provisions be made in the construction of new street sewers against soakage of sewage matter from the main drains through the adjacent soil; that a good fall be secured; that the street channel drain be well trapped and proper ventilation of the main sewer provided."*

The obvious and cogent reasons for the above particular directions are, that "sewer gases" may not escape from the main common drain back through the pipes and find their way, as it is well known they are apt to do, if the latter and private drains leading from it are not properly trapped.

The fearful result of omissions of the above kind have led Sanderson to dwell upon this portion of street sanitary engineering—for several most dangerous and fatal diseases are said to have been found to be clearly connected with such ex-

*Opus Citatum, p. 87.

posure to sewer gas, namely: 1. Diphtheria. 2. Croup and a specific type of pneumonia, namely, *pythogenic pneumonia.* From very high and most recent authority,* we have quoted the above view of such an origin being frequently afforded by this cause for these three diseases.

Under a properly regulated sanitary system throughout our State, the spread of epidemics, the contagion of which is so much more thoroughly comprehended than formerly, would be greatly restricted, while they are now spread far and wide through the want of a thorough knowledge of such rules as they would be most willingly guided by. "Some of the contagious fevers are among the most terribly fatal maladies which we are ever called upon to treat; but many of us feel convinced that these, of all diseases, are the most preventable,† for this has been clearly proved by the great success which has attended measures as yet but imperfectly carried out. Yet, year after year, in consequence, probably, of those who make our laws being ignorant of the facts, and seldom brought face to face with actual laws of disease, little is done to reduce the virulence or prevent the spread of these frightful scourges, some of which, as scarlet fever, are almost as fatal to the children of persons in easy circumstances as they are to the children of the classes where a days work seldom produces much more than is sufficient for the day's sustinance, and sometimes less than enough to preserve the body in a state fit for work. "Heads of families," continues our author, "are not always aware that a child who has completely recovered from scarlet fever, and is, in fact, well, may communicate it to half the children with whom he comes in contact, unless he be placed in quarantine for two months, by which time there is reason to think all the active contagious particles have died, or will have been removed." Many facts familiar to us of contagion being retained in closed trunks, in closets and in woolen clothes, as in case related by our friend, Dr. John S. Coleman, of this city, where, after two years, in the absence, so far as could be known, of any new infection, the apparel of a dead child seemed to communicate the disease to its brother. These facts would appear greatly to lengthen the time during which the quarantine should be maintained.

Modern sanitarians do not pretend to lay claim to the orig-

* Dr. Sanderson, vide Eighth Report of the Medical Officer of the Privy Council. 1865. Manual Public Health, p. 166.

† Beale, p. 87.

ination of the knowledge that preventive medicine has utilized in the establishment of its principles, or in the efficien- application of the measures to secure the public health. In rapid advances which curative medicine has made in the study of the causes of disease, whether atmospheric or telluric, also, the rapid strides in pathology and the discovery of disinfectants, all have contributed largely towards the present satisfactory status at which sanitation has arrived. But still there are improvements further to be made, the progress in which, in the future, will probably greatly reduce the standard death rate as at present established, and advance the average duration of human life beyond forty-two years. With the advance of science, obscurities will be cleared and the atmospheric causes of diseases may be collected, and studied, and classified, and, in the words of the almost mythic Seneca, it may be prophesied of sanitation: "The day will come when those things which are now hidden shall be brought to light by true and persevering dilligence. Our posterity will wonder that we should be so ignorant of that which is so obvious!"